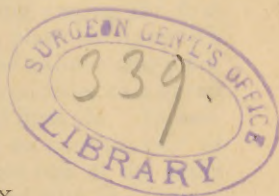


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TRITURATION OF ALKALOIDS



A Paper Read by

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TRITURATION OF ALKALOIDS.

In its progress the science of medicine receives much assistance from the collateral professions among which Pharmacy and Chemistry have been most liberal contributors. Of the products of chemistry the alkaloids merit consideration as being among the first in importance. In the alkaloid of a plant we have in a concentrated and invariable form the value—the medicinal worth of the plant. I say invariable, as a given alkaloid has ever the same chemical formula. In several cases a drug has been found to contain two or more alkaloids, though in such cases one of the same possesses pre-eminently, as compared with the others, those powers or properties which have been attributed to the crude drug. I believe where but one alkaloid is found it possesses therapeutically the properties of the mother remedy.

Two specimens of the same plant may differ as to the per cent. of alkaloid which they will yield. In other words, pound for pound, they differ in richness as to the quantity each may respectively contain of their active principle. In such case should a fluid extract be made from each specimen in accordance with the directions of the Pharmacopœa how could it be expected that the two extracts would be of uniform strength? This condition of variance has been taken note of by some of our leading manufacturing Pharmacists, who, in case of a few of the more active remedies have attached to the container a note giving the per cent. of alkaloid which analysis has proven the preparation to contain. One manufacturer goes further by giving with each of the fluid preparations which he prepares, representing pound for pound, a printed formula for a test to prove that the prep-

aration contains a required per cent. of the active principle. By a judicious mixing of the products of different percolations or distillations, as well as by dilution, a standard, which though arbitrary, can be retained. In this way an uniformity of preparation is secured which cannot be had by following the Pharmacopœa and is undoubtedly a step in the right direction.

If then, for example, the physician prescribes a fluid extract in order to obtain the effects of the alkaloid which it contains, why not prescribe the alkaloid itself and omit the starchy, coloring and other inert matter of which the extract is composed? This query is equally applicable in case of the solid extract, tincture, etc. The more general employment of alkaloids has been subject to several objections. In but comparatively few drug stores can a full line of alkaloids be found. Again, as compared with more crude preparations, they are expensive, the greater number of them being imported and principally of German manufacture. Other objections to their employment are the minuteness of the dose, requiring more delicate prescription scales than the average drug store is provided with, and particularly the difficulty in always remembering the *exact* dose, the importance of which, owing to the activity of the remedy, will suggest itself. The object of this paper is to show a means whereby these latter objections can be overcome.

In city practice, where drug stores are accessible, it is customary to write prescriptions, but in many places, and cases, were it necessary to await the arrival from the drug store of the remedies prescribed, the case would either have recovered or have terminated fatally. I favor the use of the pocket medicine case containing a reasonable number of appropriate remedies with which to meet the most common indications found in acute diseases and emergency cases. By the use of the medicine case and through the pal-

atableness of the remedies therein contained, the Homeopaths have been enabled to secure much practice which would otherwise have fallen into the hands of regular practitioners. The employment of the pocket medicine case, will, to a certain extent, do away with the annoyance and danger of the substitution and adulteration which are occasionally practiced by disreputable pharmacists in the compounding of prescriptions, for no physician for his own use would buy other than the best and purest which can be obtained, and as the profit on compounding prescriptions is generally large, the physician can frequently furnish one or more of the needed remedies at one tenth of the cost which the patient would entail at the corner drug store. This financial side of the question has often been the cause of the patient employing one of that school of medicine the practitioners of which furnish their remedies without charge. And again, when prescriptions are invariably written it often occurs that the druggist gets all the money which the patient can spare and the poor *medicus* waits, and continues waiting for his pay until the patient's gratitude has been effaced by time, and while thus waiting not infrequently learns that death has come to cancel the obligation; whereas had he furnished a portion of the medicine required he might have received at least a portion of his fees.

When in addition to the foregoing we take into consideration the promptness with which a remedy can be prescribed and the avoidance of the otherwise necessary trouble of the patient being obliged to send out to the pharmacy, and when after closing hour being subjected to extra delay as well as to extra expense, it is not difficult to see why the physician should provide himself with a case of remedies for bedside prescribing.

For this purpose it is desirable to select remedies of the greatest efficiency and concentration. As to

form, the employment of liquids is not so convenient and cleanly as is the employment of granules and powders. There is now being introduced the dosometric granules of the Metric Granule Company, which preparations are all that could be asked for in the way of granules.

What is next needed is to provide a system of preparing remedies in the form of powder which shall be practical and comprehensive and be a companion to the dosometric granule.

In the system of decimal triturations of the homeopathic school we have an indication of what is desired. In triturating the remedial agent with an inert powder, preferably sugar of milk, it is an undoubted fact, and most generally admitted by observing practitioners that the action of the remedy is increased by such process of subdivision—oftimes developing properties which the crude remedy does not possess—and that it is thereby better absorbed and assimilated, and gives better and more prompt results. Now, while the 1X and 2X and in some cases the 3X triturations of the decimal system, which when given in the usual dose of three grains means a dose of either 1-3, 1-33 or 1-333 part of a grain, are allowable and are sensible preparations; it stops at that point, for 4X means a dose of only the 1-3333 part of a grain, which is an amount too minute to warrant further consideration, unless prescribed as a placebo. The centesimal system of trituration, one of the wild vagaries of Hahnemann, does not merit attention.

It will be observed that the principal defect of the decimal system is that the arithmetical progression employed is too rapid. What can be done with the many agents the medicinal dose of which is between the 1-3 and the 1-33 or between the 1-33 and the 1-333 part of a grain? A system of trituration and nomenclature is desired by which this objection will be removed.

I employ a numeral which I have called the medical denominator, hence triturations prepared in accordance with this system can be known as "denominator triturations." In this system, as with the decimal, the medium or general adult dose is uniform—to wit: three grains, which by the way, can always be accurately measured by means of the three-grain spoon, which at the opposite end is provided with a smaller concavity which when even full contains two grains.

I have triturated one grain of a given alkaloid with a sufficient number of grains of sugar of milk so that three grains shall contain the usual adult dose. As a title after the name I affix a number which is the number of grains containing one grain of the remedy. For example, taking sulphate of morphine, the average dose of which is $\frac{1}{8}$ of a grain, I triturate one grain thereof with twenty-three grains of sugar of milk and mark it "*Morphiæ Sulphas* 24;" of this preparation the number of grains given at a dose is always the numerator over the denominator 24. Thus three grains is $\frac{3}{24}$ or $\frac{1}{8}$; two grains is $\frac{2}{24}$ or $\frac{1}{12}$; six grains is $\frac{6}{24}$ or $\frac{1}{4}$, etc. The remedy is thus sufficiently triturated for accurate dosage and so plainly marked, that, while unintelligible to the layman, it reads in the clearest possible manner to the initiated. The numeral is written or printed in as large type as is the name of the remedy and is on a line therewith, so there is no second line with a large fraction in very small figures to decipher. One soon learns to associate the numeral with the name as a part thereof, and further to classify together those remedies which require the same denominator.

The denominators which I find are the best to employ are 3, 6, 9, 12, 18, 24, 30, 36, 48, 60, 75, 90, 120, 150, 180, 240, 300, 360, 450, 600, 750, and 900. 10 and 100 may also be employed, they being the equivalents respectively of 1X and 2X of the decimal system, and may be substituted one for the other as desired. I do

not think that the benefits of trituration are secured when less than two parts of the inert powder are combined with one part of the remedial agent. This system of trituration need not be limited to the alkaloids, but may be employed with the resinoids, glucocides, oleo-resins or with other agents, as arsenious acid or any other remedy which is employed in small doses. In like manner those popular preparations the tablet triturates, can be marked with the denominator number and divided in three-grain tablets. If desired, they can be reduced to powder and the required dose measured with reasonable precision, which would also permit of the employment of tablets which have been accidentally broken. This system of trituration and marking remedies will be found to be both convenient and practical by physicians who care to do any office dispensing. And the specialist may also find it of value in the preparation of powders for topical application, in which case such other inert powder as desired can be substituted for the sugar of milk.

There has within the past year been put upon the market a class of remedies advertised as "alkatrites," which are similar to the preparations which I suggest, inasmuch as they are triturations which it is intended shall be given in three-grain doses, and in each case there is marked on the vial, in small figures, the quantity of the alkaloid which each three grains contains. It can easily be seen that it would prove at least annoying when the dose is increased or diminished to tell easily and quickly the exact amount being given. These remedies are triturated with an inert coloring matter, which is not a bad idea, as it is a proof of thorough trituration.

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